

WHAT IS CLAIMED IS:

1 1. A human communication system for realizing
2 conversations between a plurality of users using a virtual space,
3 wherein:

4 said human communication system comprises:

5 a server apparatus which manages respective locations of
6 said plurality of users in said virtual space; and

7 a plurality of client terminals used respectively by said
8 plurality of users;

9 each of said plurality of client terminals comprises:

10 a client sending means which sends information on a
11 location of a user himself of the client terminal in question to said
12 server apparatus;

13 a client receiving means which receives information on
14 respective locations of other users than the user of the client
15 terminal in question from said server apparatus;

16 a space modeling means which calculates respective
17 locations of said plurality of users based on said information on
18 the user of the client terminal in question and said information on
19 the locations of the other users; and

20 a sound control means which controls sound effects applied
21 to respective voices of said other users based on the locations
22 calculated by said space modeling means; and

23 said server apparatus comprises:

24 a server receiving means which receives, from each of said
25 plurality of client terminals, the information on the location of

26 the user of the client terminal in question;

27 a storage means which stores the respective locations of
28 said plurality of users in the virtual space, based on the received
29 information; and

30 a server sending means which sends, to each of said
31 plurality of client terminals, the information on the locations of
32 the other users than the user of the client terminal in question.

1 2. The human communication system according to Claim 1,
2 wherein:

3 each of said plurality of client terminals further comprises
4 an image generation means for generating image data to output
5 on a display screen based on the locations calculated by said space
6 modeling means.

1 3. The human communication system according to Claim 1,
2 wherein:

3 said sound control means controls said sound effects
4 applied to respective voices of the other users, based on said
5 respective locations of said plurality of users in the virtual space
6 and property information of said virtual space.

1 4. The human communication system according to Claim 2,
2 wherein:

3 said image generation means generates the image data
4 that arrange, in the virtual space, objects representing
5 respectively said plurality of users and objects representing other
6 structures, based on the locations of said plurality of users in the

7 virtual space and the property information of said virtual space.

1 5. The human communication system according to Claim 1,
2 wherein:

3 said server apparatus further comprises a processing
4 means which controls sending to said plurality of client terminals;
5 and

6 said processing means controls a sending frequency or
7 sending intervals of each terminal sending the information on the
8 location of the user of the client terminal in question to the client
9 terminals of the other users, based on distance between the user
10 of the client terminal in question and each of the other users in
11 the virtual space, and said distance is stored in said storage
12 means.

1 6. The human communication system according to Claim 5,
2 wherein:

3 each of said plurality of client terminals further comprises
4 a local policy storage means which stores communication
5 conditions for controlling communication based on properties of a
6 communication partner and a distance to said communication
7 partner; and

8 said processing means of said server apparatus obtains the
9 local policy storage means of each of said plurality of client
10 terminals, and refers to said local policy storage means to
11 determine the sending frequency or the sending intervals of
12 sending, to each of said plurality of client terminals, the
13 information on the respective locations of the other users.

1 7. The human communication system according to Claim 1,
2 wherein:

3 said server sending means sends, to each of said plurality
4 of client terminals, an event request message for requesting
5 sending of the information on the location of the user of the client
6 terminal in question to said server apparatus; and

7 said event request message designates the sending
8 frequency or the sending intervals in sending from the client
9 terminal in question of said plurality of client terminals to said
10 server apparatus; and

11 each of said plurality of client terminals sends the
12 information on the location of the user of the client terminal in
13 question to said server apparatus, according to said sending
14 frequency or sending intervals sent from the server sending
15 means.

1 8. A human communication system for realizing
2 conversations between a plurality of users using a virtual space,
3 wherein:

4 said human communication system comprises a plurality of
5 client terminals used respectively by said plurality of users;

6 each of said plurality of client terminals comprises a policy
7 session control means which controls a communication session and
8 a local policy storage means for storing communication conditions;

9 when a user of a client terminal communicates with a
10 client terminal of other user than the client terminal in question,

11 said policy session control means of the client terminal in
12 question refers to the local policy storage means of the client

13 terminal in question to judge whether the other user complies
14 with the communication conditions, and, when the communication
15 conditions are complied with, sends a communication request with
16 designation of said communication conditions to policy session
17 control means of the client terminal of the other users;

18 each of said policy session control means of the client
19 terminal of the other user refers to the local policy storage means
20 of the client terminal of that control means to judge whether said
21 client terminal complies with the designated communication
22 conditions, and when the conditions are complied with, sends a
23 communication permission to said policy session control means
24 that has sent the communication request, and when the conditions
25 are not complied with, sends a communication rejection to said
26 policy session control means that has sent the communication
27 request.

1 9. The human communication system according to Claim 8,
2 wherein:

3 said policy session control means of the client terminal of
4 the other user sends a communication permission added with
5 communication conditions changed from said designated
6 communication conditions to said policy session control means
7 that has sent the communication request.

1 10. The human communication system according to Claim 8,
2 wherein:

3 each of said plurality of client terminals further comprises
4 a space modeling means which holds information on a location of a

5 user of the client terminal in question and locations of the other
6 users; and

7 said policy session control means of the client terminal in
8 question refers to the policy storage means of said client terminal,
9 and, based on a distance between the user of the client terminal
10 in question and each of the other users in the virtual space,
11 disconnects communication with a client terminal of the user in
12 question, or make said communication be lower quality
13 communication.

1 11. The human communication system according to Claim 8,
2 wherein:

3 said communication uses at least either of voice and
4 image;

5 each of said plurality of client terminals further comprises
6 a space modeling means for holding information on a location of a
7 user of the client terminal in question and locations of the other
8 users; and

9 said policy session control means of the client terminal in
10 question refers to the policy storage means of said client terminal,
11 and, based on a distance between the user of the client terminal
12 in question and each of the other users in the virtual space,
13 obscures voice or an image used for communication with a client
14 terminal of the user in question, or performs replacement
15 processing on a part of the voice or the image to make the voice or
16 the image inaudible or unreadable.

1 12. The human communication system according to Claim 8,

2 wherein:

3 said policy session control means refers to said local policy
4 storage means, to change a bandwidth used for communication.

1 13. The human communication system according to Claim 8,
2 wherein:

3 each of said plurality of client terminals further
4 comprises: a space modeling means which holds information on a
5 location of a user of the client terminal in question and locations
6 of the other users; and a power control means which controls
7 power supply;

8 said policy session control means of the client terminal in
9 question sends a predetermined signal to said power control
10 means, based on a distance between the user of the client
11 terminal in question and another user closest to said user in the
12 virtual space, wherein said distance is received from the space
13 modeling means; and

14 said power control means lowers power consumption, when
15 said predetermined signal is received.

1 14. A server apparatus in a human communication system
2 using a virtual space for realizing conversations between a
3 plurality of users using respectively a plurality of client terminals,
4 said server apparatus comprising:

5 a server receiving means which receives, from each of said
6 plurality of client terminals, the information on the location of
7 the user of the client terminal in question;

8 a storage means which stores the respective locations of

9 said plurality of users in the virtual space, based on the received
10 information; and

11 a server sending means which sends, to each of said
12 plurality of client terminals, the information on the locations of
13 the other users than the user of the client terminal in question.

1 15. The server apparatus according to Claim 14, wherein:

2 said server apparatus further comprises a processing
3 means which controls sending to said plurality of client terminals;
4 and

5 said processing means controls a sending frequency or
6 sending intervals of each terminal sending the information on the
7 location of the user of the client terminal in question to the client
8 terminals of the other users, based on distance between the user
9 of the client terminal in question and each of the other users in
10 the virtual space, and said distance is stored in said storage
11 means.

1 16. A human communication method using a virtual space for
2 realizing conversation between a plurality of users, wherein:

3 each of plurality of client terminals used respectively by
4 said plurality of users performs:

5 a step of sending information on a location of a user
6 himself of the client terminal in question to a server apparatus
7 that manages respective locations of said plurality of users in said
8 virtual space;

9 a step of receiving information on respective locations of
10 other users than the user of the client terminal in question from

11 said server apparatus;

12 a step of calculating respective locations of said plurality
13 of users based on said information on the user of the client
14 terminal in question and said information on the locations of the
15 other users; and

16 a step of controlling sound effects applied to respective
17 voices of said other users based on said calculated locations.

1 17. The human communication method according to Claim 16,
2 wherein:

3 each of said plurality of client terminals used respectively
4 by said plurality of users performs:

5 a step of generating image data to output on a display
6 screen, based on said locations calculated by said space modeling
7 means.

1 18. A human communication method using a virtual space for
2 realizing conversations between a plurality of users, wherein:

3 each of a plurality of client terminals used respectively by
4 said plurality of users performs a following step, when a user of
5 the client terminal in question communicates with other client
6 terminal used by other users than said user; namely,

7 a step of referring to a local policy of said client terminal
8 in question, with said local policy storing communication
9 conditions of said client terminal, judging whether the other user
10 comply with said communication conditions, and when the
11 communication conditions are complied with, sending a
12 communication request designating said communication

13 conditions to the other client terminal of the other user; and
14 said client terminal that receives said communication
15 request performs:
16 a step of referring to a local policy storing communication
17 conditions of the client terminal in question, judging whether said
18 communication conditions designated are complied with, and
19 when said designated communication conditions are complied with,
20 sending a communication permission to said client terminal that
21 has sent said communication request, and when said designated
22 communication conditions are not complied with, sending a
23 communication rejection to said client terminal that has sent said
24 communication request.